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Correlations studies in exotic collections of tomato

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ABSTRACT : Correlation coefficient studies were carried out for fourteen yield attributes and four shelf life attributes in 59 tomato genotypes comprising of 56 exotic collections. Correlation coefficient analysis among fourteen yield attributes revealed that fruit yield per plant is positively and significantly correlated with plant height, number of primary branches per plant, number of flowers per cluster, fruit length and fruit width. There was positive and significant correlation between total soluble solids (TSS) and shelf life whereas, negative and significant correlation was observed between ascorbic acid and shelf life.

KEY WORDS : Correlation co-efficient, Genotypes, Exotic collection, Yield, Shelf life

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Tomato (*Lycopersicon esculentum* Mill.) is one of the most popular and widely grown vegetable crop of commerce in the world ranking second in importance to potato but tops the list of processed vegetables (Chaudhary, 1996). The fruits are consumed as raw, cooked or processed as juice, ketchup, sauce, paste, puree etc. It is good source of vitamin C, vitamin A and vitamin B. The consumption of tomato products has been associated with a lower risk of developing digestive tract and prostate cancers (Giovanucci, 1999) due to the ability of lycopene and other antioxidant compounds to prevent cell damage. So, it is necessary to evolve varieties with high productivity and processing qualities. Correlation studies between fruit yield and its components and knowledge of relative contribution of such characters towards yield would be of great value in planning and execution of breeding programmes. Hence, an attempt has been made in the present investigation to study the association of different traits based on *per se* performance.

RESEARCH METHODS

A net of 59 genotypes comprised of 56 exotic collections of tomato augmented from the National Bureau of Plant Genetic Resources Regional Station, Hyderabad along with three checks of tomato (Arka Vikas, Marutham and Punjab Chhauhara) were utilized for the present study. The germplasm lines were evaluated in an augmented block design with eight blocks and three checks during *Rabi*, 2011-12 at the National Bureau of Plant Genetic Resources, Regional Station, Hyderabad. In each block, seven germplasm lines and three checks were grown and each germplasm line was grown in a single row of 4 m length. Row-to-row spacing of 60 cm and plant-to-plant spacing of 50 cm was maintained. The recommended package of practices was followed for raising the crop and necessary prophylactic plant protection measures were carried out to safe guard the crop from pests and diseases. The mean replicated data on various biometric traits were subjected to analysis of variance of augmented block design as per the standard statistical procedure (Federer, 1956). The correlation coefficients analysis among yield and quantitative attributes, shelf life and qualitative attributes were estimated as per the procedure followed by Panse and Sukatmae (1967).

RESEARCH FINDINGS AND DISCUSSION

Yield is the resultant of combined effect of several